

CARDBOARD CRAFT CHALLENGE 2017 ENTRANT'S PACK

Institution of
**MECHANICAL
ENGINEERS**



Improving the world through engineering

East Yorkshire Young
Members Committee

About

The Cardboard Craft Challenge is a community and educational outreach activity organised by the Institution of Mechanical Engineers (IMechE) in partnership with the Welton Waters Adventure Centre (WWAC). The purpose of the event is twofold:

1. To inspire young people to choose a career in Science, Technology, Engineering, or Mathematics (STEM) by presenting these subjects in a fun and interactive way.
2. To promote the local Area Committees of the Institution of Mechanical Engineers and the activities of the Welton Waters Adventure Centre.

The event is open to the general public and comprises 3 different activities, which take place simultaneously on the same site. These are:

1. The cardboard boat race itself (£15 entry fee per team, advance registrants only)
2. Water based activities and hire including kayaking and windsurfing (small fee applies)
3. An engineering exhibition including a Formula Student race car, race car simulator, model crane building and live 3D printing

This year's event will take place between 10:00 and 17:00 on 5th August 2017 at the Welton Waters Adventure Centre, a manmade lake set on the edge of the River Humber.

Welton Waters Adventure Centre,
Common Lane,
Welton,
Brough,
East Yorkshire,
HU15 1PT

For venue information including directions please visit the centre's website, www.wwac.org.uk



Sponsors

This year's event would not be possible without the support of the following organisations who have all contributed either by monetary or physical donations:

Eligibility

The event is open to the public and can be enjoyed by people of all ages. Under 18s must be accompanied by at least one adult (18+) who shall agree to act “in loco parentis” and be responsible for them at all times. Any persons under the age of 18 must also obtain parental consent.

The event will have a “Fun-Day” theme and we would encourage families, local companies, school and youth groups to all come and take part.

For safety reasons the following restrictions apply to the below activities:

Cardboard Boat Race:

- Any participants competing upon the water must be confident to be in the water wearing personal buoyancy aids.
- We recommend those competing upon the water are at least 8 years old.

Water Based Activities:

- Participants must be confident to be in the water wearing personal buoyancy aids.

There are no restrictions for the land based activities and exhibits.

Prizes

Prizes will be awarded for different areas of the cardboard boat race including:

- Fastest Time (On-the-day class)
- Fastest Time (Pre-build class)
- 2nd Fastest Time
- 3rd Fastest Time
- Best Design
- Best Endurance
- Best Sinking

Prize giving will be undertaken at the end of the day after completion of the final race.

Format

The event will run from 10:00 until 17:00 with the land based exhibits available throughout. The water based hire activities will also be available throughout the day and can be booked for a small fee at the main desk.

Cardboard Boat Race

The Cardboard Boat Race will comprise of 2 classes as defined below:

- On-the-day Build Class: Aimed at a younger, less experienced participants. All craft are constructed within a set time period on the day of the event using the set resources provided with support of the IMechE members.
- Pre-Built Class: Aimed at more experienced participants and organisations. Craft are constructed away from the venue before the event and refined on the day. This allows greater flexibility in the materials used and time available, allowing for more extravagant and masterful crafts to be created.

The activity will be split into 4 different 3 hour sessions throughout the day, each staggered one hour apart to allow for increased supervision and use of resources. These will be as follows:

- Session 1: 10:30 – 13:30
- Session 2: 11:30 – 14:30
- Session 3: 12:30 – 15:30
- Session 4: 13:30 – 16:00

The first 3 sessions will be for the on-the-day build classes while the final class will be for the Pre-Built Class. Sessions will be allocated prior to the event via the booking process. Please arrive at least 30 minutes prior to the allocated session to ensure time for changing and briefing, although we recommend arriving earlier to enjoy the other activities on offer.

Participants of the on-the-day build class will be given 15 minutes to plan and design their boat with assistance from the IMechE and STEM ambassadors. They will then have 2 ¼ hours to build it before the racing begins. The same format will be followed for the pre-built class with the omission of the planning time.

The races will consist of a timed lap from the slipway, around a marker in the lake and back again, hopefully without sinking! This must be performed with at least 2 participants in the boat at all times. Oars or hand paddles will be provided.

Rules & Regulations

General Rules

1. Safety. You and your team must act with due care and attention to the safety of yourselves and others throughout the event. In particular:
 - a. Your team must contain at least one adult (18+) who shall be responsible for team members who are under 18.
 - b. You and your team must pay attention to and follow the instructions given by the event organisers and their assistants (especially the safety boat crew).
 - c. Knives and cutting tools must only be used under close supervision of the responsible adult within your team and within the designated cutting area. Always CUT AWAY FROM YOUR BODY AND THE BODIES OF OTHERS. The provided safety equipment must be worn at all times when using the cutting equipment.
 - d. Helmets and buoyancy aids (provided) must be worn at all times whilst on the water.
 - e. Your boat must not be constructed in a manner such that its occupants could become trapped within, or entangled by it.
 - f. Children must be supervised at all times.
 - g. No person shall take part in this event whilst they are under the influence of alcohol or drugs.
 - h. The event organisers reserve the right to refuse admission or to eject any participant who causes a danger to themselves or to others.
 - i. All team members must disclose any relevant medical conditions that may affect their ability to take part in this event (all details will be treated in the strictest confidence).
 - j. Any persons under the age of 18 must obtain parental consent.

2. Tools, equipment, and materials. We will provide all of the tools, equipment, and materials that you need for the on-the-day build event. A refundable £10 cash deposit will be charged for the loan of our tools and equipment. No tools, equipment, or materials - other than those provided by us - may be brought on site or used during this event. Tools and equipment are used at your own risk.
3. Cancellation. The registration fee is none refundable. If we cancel the event for any reason, you will receive a full refund. You will be notified of any cancellation by email (and by phone if cancellation occurs within 24 h of the event start time). The event organisers reserve the right to cancel the event at any time.
4. Bad weather. This event is weather dependent. We will make a judgement on the state of the weather at 9am on the morning of the event. You will be contacted by telephone if the event is cancelled or significantly delayed.

Competition Rules

1. The IMechE Cardboard Boat Race is a fun and educational event for families and friends. It is not a serious sporting competition. By entering, you agree to participate within the spirit of the event.
2. Teams. Each team must contain at least 2, but no more than 6 participants. Up to 8 teams will participate in each session, each of which will start one hour apart.
3. Format. Each group of teams shall have time to plan, build, and test their boat. There will be 15 min for planning (on-the-day class only), followed by 2 ¼ h for building, and 30 mins for racing.
4. Planning. NO CONSTRUCTION is allowed during the 15 min planning time (on-the-day class only).
5. Building. No water activity is allowed during the first part of the build period. Testing and racing however will be allowed during the final half hour of the build period (subject to availability of supervisors). Each boat will be subjected to scrutineering in line with the rules before being allowed into the water.
6. Racing. Each cardboard boat must be sailed/paddled by at least TWO team members. Performance will be judged first by distance and then by time. Participants must remain within the boat at all times. Shipwrecks will be marked and measured by the safety boat crew. The judge's decision is final. Participants shall assist with the removal of cardboard debris from the water, if it is safe to do so.

Boat Regulations

1. Boats shall not be designed/constructed in such a manner that their occupants could become trapped within or entangled by them. In particular the main body of the boat should not be enclosed.
2. Boat decoration is encouraged, provided that it:
 - a. does not aid flotation or propulsion;
 - b. does not impede your ability to swim;
 - c. does not pose any other safety hazard;
 - d. is not inappropriate;

Non-compliant boats/teams shall be disqualified from the competition.

3. No propulsion other than oars/paddles and hands/legs is permitted.
4. Boats must not pollute the marine environment in any way. Shipwrecks must be recovered to the slipway. Any paint or varnish etc. used must be fully dry before boats are placed in contact with the water.
5. Each boat must pass technical inspection by a scrutineer at any time requested.

ON THE DAY BUILD CLASS

1. Boats may only be constructed from the materials and equipment supplied by the organisers on the day. This is likely to include:
 - a. 50 m of heavy duty cloth tape
 - b. 5 m² (Approx.) corrugated cardboard
 - c. 3 m cardboard tube
 - d. 8 m rope
 - e. Bin Bags
2. No other materials may be used.

PRE-BUILD CLASS

1. Boats may only primarily be constructed from cardboard. Any thickness of corrugated cardboard is permitted, including coated cardboards, carpet tubes, and cardboard barrels.
2. Any tape may be used. Duct tape highly recommended.
3. Boats may be wrapped in tape, plastic, shrink wrap etc. up to a maximum of 50% of their overall surface area.
4. Dried paint and varnish is permitted provided it is not harmful to the maritime environment.
5. Fibreglass or similar materials are not permitted.
6. Caulking, Liquid nails, etc may be used, but only on seams and edges. These must be fully cured before the event.
7. No other floating material other than cardboard may be used. I.E Foam.
8. Glue may be used between layers of cardboard provided it is not harmful to the maritime environment.

Judging

The competition will be judged by members of the IMechE Area Committee and event sponsors. The fastest time will be determined by the stopwatch although other prizes will be down to design, ingenuity and creative flare! Should no competitors complete the full course, positions will instead be based on the distance covered before becoming a shipwreck.

Other Information

Wetsuits are not required for the majority of activities although are available for use upon request.

Anyone participating in the water based activities including the cardboard boat race are advised to bring swimwear and a change of clothes plus old clothing and footwear for use in the lake.

Food and refreshments will be available throughout the afternoon from the BBQ (weather permitting) and tuck shop.

Spectators will be able to watch the action unfold from the bank of the lake although we would recommend bringing a fold up chair as seating is limited.

Car parking: Limited car parking is available within the WWAC site itself although additional parking is available a short walk from the centre in the area directly after the last corner of the approach road. This will be signposted on the day.

Booking & Booking conditions

Bookings for the event can be made through the IMechE's website on our Near You page:

<http://nearyou.imeche.org/near-you/UK/Yorkshire/east-yorkshire-area-young-members-panel/events>

Tickets are available as follows:

- | | |
|---|-----|
| - General Admission | £2 |
| - Cardboard Boat Race, Team Entry, up to 6 people
(includes General Admission) | £15 |

Tickets for the water based activities will be available on the day on a first come first served basis.

Teams with a Cardboard Boat Race entry will be contacted in the weeks leading up to the event with details of the allocated session. This will be via the email address provided.

Booking Conditions

1. We reserve the right to alter/change all activities offered due to weather conditions and safety factors.
2. It is the group leader's responsibility to provide WWAC with all relevant medical conditions, allergies or special needs for all party members at time of booking.
3. It is the group leader's responsibility to have emergency contact details for all party members.
4. It is the group leader's responsibility to obtain parental consent for any group members under the age of 18.
5. The organisers reserve the right to remove any persons from an activity due to misconduct or abusive behaviour towards any of the staff or volunteers.
6. Any gross misconduct leading to the loss or damage of WWAC property and/or equipment, including facilities used, will be invoiced at cost of repair or replacement.
7. The organisers accept no responsibility for personal belongings on site. Any lost property must be claimed within 7 days of the event taking place.
8. Please note that WWAC is a NO Smoking NO Alcohol site.
9. The Group Leader(s) accept responsibility for the general conduct of the group members throughout the stay.
10. The Group Leader(s) and other accompanying adults agree to act "in loco parentis" at all times.
11. If a group member is removed from an activity due to misconduct then it is the Group Leader's responsibility to supervise them.
12. Bookings are none refundable.

Contact

For more information, please contact the event organisers:

Adam Stephenson

EYorksYMChair@imechenearyou.org

You can also contact us through our Facebook page, as well as find further information about this and our other events:

www.facebook.com/IMechE.EYYM